

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) An apparatus for producing seedlings without requiring a waterproof structure from seedling culture to welding, so as to make acclimatization unnecessary and accelerate a growth of the seedlings, the apparatus comprising:

a closed-type structure surrounded by light-interceptive thermally insulating walls; multi-staged seedling culture shelves provided with a plurality of shelf boards capable of mounting grafted seedlings thereon, said seedling culture shelves being disposed within said closed-type structure;

a plurality of artificial lighting devices capable of projecting light onto the grafted seedlings and a plurality of fans capable of generating an air stream over each of said seedling culture shelves, a respective artificial lighting device of said plurality of artificial lighting devices and a respective fan of said plurality of fans being installed on each of said seedling culture shelves;

an air conditioning unit capable of controlling a temperature and a humidity within said closed-type structure;

a carbon dioxide gas supply unit capable of supplying carbon dioxide gas into said closed-type structure; and

a light-transmitting shield detachably disposed to cover the grafted seedlings mounted on each of said plurality shelf boards of said seedling culture shelves,

wherein said light-transmitting shield includes a plurality of vent holes,

wherein each of said plurality of vent holes includes a means for varying an open area of the vent hole thereof,

wherein said light-transmitting shield includes two side faces that are parallel to a direction of a flow of the air stream,

wherein said two side faces are opposing and non-adjacent side faces of said light-transmitting shield, and

wherein said plurality of vent holes are formed only in said two side faces of said light-transmitting shield to generate a static pressure from the flow of the air stream, such that said plurality of vent holes are formed only in the opposing and non-adjacent side faces of said light-transmitting shield, and such that the static pressure provides a gas exchange between an inner space of the closed-type structure and an inner space of said light-transmitting shield, so as to make the acclimatization unnecessary during the welding of the seedlings.

Claim 2 (Cancelled)

Claim 3 (Withdrawn) A method of producing seedlings comprises: when grafted seedlings (8) are to be produced by using the apparatus for producing seedlings of claim 1, cultivating rootstocks and scions on the seedling culture shelves (3) of said apparatus; joining the cultivated rootstocks and scions with each other to prepare grafted seedlings; mounting the grafted seedlings on the shelf boards (3a) of said seedling culture shelves (3); covering the grafted seedlings on each of said shelf boards with the light-transmitting shield (9) provided with the plurality of vent holes (15); projecting light of a predetermined luminous intensity onto the grafted seedlings from the artificial lighting device (5) of said apparatus through said light-transmitting shield;

controlling the temperature and the humidity within the closed-type structure (2) of said apparatus by the air conditioning unit (6) of said apparatus and supplying carbon dioxide gas into said closed-type structure by the carbon dioxide gas supply unit (7) while generating air stream over each of said shelf board by the fan (4) to thereby enable gas exchange between the inner space of said closed-type structure and the inner space of said light-transmitting shield to be carried out through the vent holes of said light-transmitting shield; and

performing welding of the grafted seedlings under this condition(state).

Claim 4 (Withdrawn) The method of producing seedlings according to claim 3, wherein, by making controllable the rate of hole area of the plurality of vent holes (15) in said light-transmitting shield (9), the quantity of gas exchange between the inner space of said closed-type structure (2) and the inner space of said light-transmitting shield (9) through said vent holes are made controllable.

Claim 5 (Withdrawn) The method of producing seedlings according to claim 3, wherein the luminous intensity during the welding of the grafted seedlings (8) is set to between 150 and 350 $\mu\text{mol}/\text{m}^2/\text{s}$ in terms of the photosynthesis photon flux density.

Claim 6 (Withdrawn) The method of producing seedlings according to claim 4, wherein the luminous intensity during the welding of the grafted seedlings (8) is set to between 150 and 350 $\mu\text{mol}/\text{m}^2/\text{s}$ in terms of the photosynthesis photon flux density.

Claim 7 (Previously Presented) The apparatus according to claim 1, wherein the apparatus includes a plurality of said light-transmitting shields, each of said plurality of said light-transmitting shields being mounted on a respective shelf board of said plurality of shelf boards.

Claim 8 (Previously Presented) The apparatus according to claim 1,
wherein said light-transmitting shield includes five sides,
wherein said five sides of said light-transmitting shield includes (i) a top side, (ii) said two side faces that are opposing and non-adjacent side faces having the plurality of vent holes formed therein, and (iii) two additional opposing and non-adjacent sides,
wherein, when said light-transmitting shield is disposed to cover the grafted seedlings, said top side is located above the grafted seedlings,
wherein, when said light-transmitting shield is disposed to cover the grafted seedlings, said two side faces are located at sides of the grafted seedlings, and
wherein, when said light-transmitting shield is disposed to cover the grafted seedlings, said two additional opposing and non-adjacent sides are located at sides of the grafted seedlings, and
wherein none of said two side faces of said light-transmitting shield having the plurality of vent holes formed therein are located at said top side of said light-transmitting shield.

Claim 9 (Previously Presented) The apparatus according to claim 8,
wherein the direction of the flow of the air stream is such that (i) the air stream flows along said two side faces of said light-transmitting shield, and (ii) the air stream flows perpendicular to said two additional opposing and non-adjacent sides.

Claim 10 (Previously Presented) The apparatus according to claim 1, wherein each means for varying the open area of each of said plurality of vent holes includes:

guide frames fixed on an outer face of said light transmitting shield in a longitudinal direction; and

a hole area adjusting plate slidably held by said guide frames and including a plurality of openings varying a size of the open area to adjust a hole area rate between 0% and 100% by slidably moving said hole area adjusting plate along said guide frames in the longitudinal direction.